Potential Questions/Topics to consider for your Panel Discussion (including the persons to whom Matt would first address each question):

Before Harvey Made Landfall

1) When did you start preparing for the potential environmental impacts from Harvey? (Bryan)

Preparation by State and Federal partners for Hurricanes like Harvey began nearly a decade ago. After Hurricane Ike in 2008, EPA, TCEQ, the General Land office and the Coast Guard created the Natural Disaster Operational Workgroup [NDOW] to improve coordination in natural disasters. Under the NDOW plan, these four agencies are under a unified command system that coordinates assets, staffing, and communications. The NDOW established a framework of standard operational procedures, standardized data quality objectives, one common database system, training and exercises for effective coordination of multi-agency response to man-made and natural disasters. In addition, these agencies conduct routine exercises to improve processes and procedures for natural disaster responses.

EPA and TCEQ began tracking Harvey when it was named on August 17, 2017. Harvey crossed the Yucatan peninsula on August 22, 2017 as a tropical storm. Within two days over the Gulf of Mexico Harvey strengthened to a Hurricane. EPA and TCEQ activated our emergency operations centers on August 24, 2017.On August 25, 2017 Harvey hit Corpus Christi and Rockport as a category 4 hurricane with 130 miles per hour winds. Over the next 7 days Harvey tracked the gulf coast as an intense tropical storm dropping some 21 trillion gallons of water causing massive flooding. EPA and TCEQ activated the unified command on August 28, 2017.

2. What was different from Harvey compared to other storms and hurricanes the area had seen? (Ed)

Harvey had the impact of a class four hurricane coupled with a record breaking tropical depression that lingered for a week along the Gulf Coast making two more landfalls near Houston and Beaumont, dropping record-setting rainfall amounts which resulted in widespread flooding in an area of 150 by 350 miles. In the Houston area a record of over 50 inches of rain fell.

During the Storm

3. To what extent did your agencies work together and coordinate before and during the storm? (i.e., was there good coordination among industry, TCEQ and EPA?) (Anne and Bryan)

EPA Region 6 and TCEQ have a strong and long lasting relationship in the area of emergency response and our efforts during Hurricane Harvey continues to build on this rapport. At the request of TCEQ, EPA mobilized resources to assist in the Hurricane Harvey response and formed a Unified Command, between EPA, the Texas Commission on Environmental Quality (TCEQ), the Texas General Land Office (TGLO), and the U.S. Coast Guard (USCG). At the peak of the response, TCEQ deployed over 500 staff and EPA was able to provide over 260 support staff hailing from all 10 EPA Regional Offices.

Working side-by-side during this response we were able to meet the demands of the response and achieve early accomplishments such as: 648 Hazard Evaluations completed, 1,055 orphan containers recovered, 2,200 drinking water assessments completed, 1,700 waste water assessments completed, 256 spills investigated, daily aerial over-flights for air monitoring, 7 fuel waivers signed, 7th waiver covers 38 states, 4 No Action Assurance letters signed & 43 NPL site evaluations completed.

4)What measures did your agency put in place during the storm to try to minimize environmental impacts? (Anne, then Bryan)

Recognizing that up to 20 percent of the country's oil and gas production was potentially affected, EPA gave high priority to fuel waivers. Seven waivers were processed within hours of receipt [as oppose to days in past storms]. While the storm was progressing along the Gulf Coast, EPA provided staff to TCEQ in Austin to support outreach to waste water and drinking water systems and the Unified Command opened response centers in Corpus Christi, Houston, and Beaumont.

5) And what did you put in place to make sure you could effectively monitor all that was going on? (same)

EPA and TCEQ inspectors were on the ground to assess environmental impacts from Harvey. These staff were able to complete 650 hazardous material investigations; assess 256 reported spills; assess 2,000 drinking water facilities and 1200 wastewater facilities; and investigate reports of industrial upsets.

Also, EPA was able to deploy several unique assets to support the unified command response:

- One of these were two Trace Atmospheric Gas Analyzer [TAGA] buses. TAGA is a mobile air pollution detection vehicle that is able to detect, analyze and report concentrations of 18 different air pollutants every two minutes as it moves through neighborhoods in proximity to industries. The TAGA buses covered 640 miles from Corpus Christi to Beaumont/Port Arthur. Results of the sampling were posted on both EPA and TCEQ web sites to inform the public of air quality conditions.
- Another unique asset EPA was able to contribute was the ASPECT ['Airborne Spectral Photometric Environmental Collection Technology'] airplane. ASPECT is equipped with sensors that instantaneously detects concentrations of air pollutants. ASPECT flew 28 flights monitoring for pollutant releases for over 112 hours and covered miles of pipelines, 134 Risk Management Plan facilities, 456 drinking water plants and 105 waste water plants. ASPECT was also used to provide monitoring of the Arkema Chemical Facility in Crosby Texas which lost power from the storm and had explosions. The results of these measurements were also posted on EPA and TCEQ response web sites.
- A third EPA asset deployed was a mobile laboratory called PHILIS ['Portable High-Throughput Integrated Laboratory Identification System]. EPA has a laboratory in Houston but it was inaccessible due to flooding. This mobile laboratory provided results

with a 48-hour turnaround and was used to analyze samples from all 43 EPA Superfund sites. Results of the Superfund site inspections and tests were posted on EPA's web site.

.

6) What is your view of what regulatory flexibility should be during a crisis like this? (Ed)

7) What was the Agency position on regulatory flexibility and how did you (TCEQ / EPA) communicate that to the regulated community? (Bryan, then Anne)

We believe that EPA and TCEQ have been responsive to the regulated community's concerns for flexibility. Examples include:

No Action Assurance Letters

EPA issued five "No Action Assurance" letters. Three to the State of Texas and two to Louisiana. The aim of these letters was to facilitate distribution of fuel to those areas impacted by Harvey. In past hurricane events, these assurances have typically taken several days of review prior to issuance. In Harvey, EPA accelerated the review and issued the letters within hours. These letters assured that the EPA would not pursue enforcement actions against tanker trucks for provisions of the Clean Air Act and parallel State regulations related to tank tightness and registration for tanker trucks. The letters also affirmed that EPA would not pursue enforcement actions that relate to violations of provisions of the Clean Air Act for emissions of certain air pollutants from gasoline storage tanks during events known as "roof landings" in Texas. Further, NAAs were also issued to Texas and Louisiana to allow the loading and unloading of fuel without the use of vapor recovery devices or vapor combustion devices.

EPA also provided a no action assurance letter for the import of 255 power generators by the Yamaha Motor Corporation to be donated to in communities impacted by Hurricanes Harvey in Texas and Irma in Florida, to assist in their recovery efforts. These power generation units did not bear the emission control information labels required by the Clean Air Act.

Force Majeure Claims for over 20 Facilities:

As a result of infrastructure damage and subsequent flooding caused by Hurricane Harvey, force majeure consent decree claims and/or notices of potential Clean Air Act force majeure claims were submitted to EPA by 20 refineries located in Texas and Louisiana. EPA reviewed, requested information, and drafted response letters to these claims, with some responses sent in a matter of weeks. Additionally, Region 6 coordinated with its state partners and the Department of Justice in drafting such letters. Support for a Force Majeure claim is a very rigorous test.

Superfund Site Response

At the San Jacinto Waste Pits Superfund site, the parties conducting response work under EPA oversight submitted to the Region Work Plan schedule extensions, which the Region reviewed and granted under the circumstances.

Notification Letters:

After Hurricane Harvey had passed, Region 6 sent fifteen (15) notification letters to facilities located in and around Houston's Manchester community regarding elevated levels of volatile organic compounds ("VOCs"). The letters requested the fifteen (15) facilities to conduct surveys and air monitoring within their facilities to identify and address unauthorized sources of emissions to the air.

Valero Houston Refinery: - In response to tank failures at the Valero Houston Refinery facility subsequent to Hurricane Harvey and excess emissions in the surrounding community, Region 6 issued an Information Request pursuant to Section 114 of the Clean Air Act ("CAA"). Region 6 also conducted an inspection of the facility on September 14, 2017.

7. What environmental events happened during the storm that were unexpected? (Bryan)

While flooding is always an issue during hurricanes, the flooding in Houston was more than anyone expected. Areas of Houston received more than 51 inches of rainfall from August 23-30, 2017. Recovery from the storm is ongoing with over 130,000 homes with storm damage and evaluations of infrastructure still being done.

On the positive side, industry shutdown in advance of the storm was very effective and there were far fewer releases on startup that might have been expected from a storm of this magnitude. For example, all of the environmental tests of air quality did not indicate that there were breaches of health-based standards.

Another extremely positive aspect of Harvey was the responsiveness of local governments and individual citizens to pitch in and help respond to the challenges presented by the storm. Ground level infrastructure in Texas has proved to be very resilient.

8) What did your agency do to make sure local citizens and the regulated community were kept informed of problems and progress during the storm? (Anne)

EPA and TCEQ developed Harvey websites, and document repository so the public and regulated community could access information. These websites were updated daily with information from the unified command.

EPA also deployed 30 Community Liaison staff to each of the county emergency centers to ascertain their needs. The liaisons also provided federal and state guidance on best practices to individuals who were dealing with potential hazards in damaged or lost homes. EPA and TCEQ also released the Handling Debris During Natural Disasters fact sheet in English, Spanish and Vietnamese.

9) What was the most important thing Congress can do during a crisis like this? (Ed)

Congress held hearings and is currently reviewing the effectiveness of EPA and State responses to Harvey, Irma, Maria and the fires in California. We believe that the lessons learned from the unified command system in Texas will provide valuable examples of the right path for preparedness for crises like this.

10) What were the biggest environmental impacts from Harvey? (Bryan)

The most important part of our response during the early stages was the assessment of the drinking water and wastewater infrastructure. Harvey impacted 2,200 drinking water systems which serve 7,260,000 people. In addition, over 1,200 wastewater treatment plants in the 58 counties within the Governor's Disaster Declaration needed to be surveyed. Ensuring the public has safe water to drink was the priority for the EPA and the State of Texas.

Debris management is another major environmental impact. As people gutted their houses to begin the repair process, debris management became a central longer term concern. To assist in the segregation of debris, the TCEQ and EPA released 'Handling Debris During Natural Disasters' fact sheets in English Flyer, Spanish Flyer, Vietnamese Flyer. TCEQ has been a leader in this effort and has approved over 200 temporary debris management sites. As part of the Harvey response, TCEQ and EPA established joint landfill and staging area field observation teams. EPA participated in over 200 joint site observations and TCEQ has conducted over 2000 inspections of these sites to ensure proper handling. These site observations generated confidence in the debris management processes and confirmed that TCEQ was consistently implementing a standard procedure across the sites.

11) How did your agency address them (and if they are still ongoing, how is it still addressing them)? (Anne)

During the response to Hurricane Harvey, EPA worked collaboratively with Texas and local officials to assess drinking water and waste water systems; retrieve loose containers and safely dispose of over 20 million cubic yards of debris. EPA also approved the Texas Water Development Board proposal to utilize State Revolving Funds from the EPA to address immediate recovery and future resiliency efforts in Texas. In October the response to Hurricane Harvey transitioned to Recovery work, allowing most of the EPA staff to return to their normal work offices. EPA continues to work with Texas on Recovery planning.

12) What did you learn from Harvey that would like to see done differently during the next hurricane? (Ed)

Both EPA and TCEQ are still in the process of assessing lessons learned and identifying internal processes that can be improved. However, one of the most noteworthy aspects of the response to Hurricane Harvey was the positive and collaborative relationship between EPA and the state of Texas. Because we worked very closely with the state agencies and the Governor's office, the collective strength of our efforts were greater than the sum. By augmenting state resources where they were needed and providing some specialized monitoring capabilities, together we were able to address the many challenges presented by Hurricane Harvey in a timely manner.